40. The spindle drive according to claim 34, further comprising an anti-rotation lock mounted securedly against rotation on the threaded spindle and inserted with positive locking engagement into a threaded spindle receiving bore of a security plate, wherein the anti-rotation lock is destroyed during emergency operation of the threaded spindle.

41. The spindle drive according to claim 34, wherein a security plate fixes through a bracket the position of a nut which is mounted on the threaded spindle and secures the position of the threaded spindle.

42. The spindle drive according to claim 34, wherein a plastic security member is located in a threaded spindle receiving opening of each holder so that a circular round cross-section of each threaded spindle receiving opening remains secure and the width of the plastic security member is greater than the diameter of the threaded spindle receiving opening wherein in the case of an emergency operation the plastic security member can be removed and the threaded spindle can escape into the space which becomes available.

43. The drive according to claim 4, wherein each of the two pairs has two housing plates that are identical in design.

REMARKS

This amendment is submitted in response to the Office action mailed October 4, 2002. Claims 1-43 are pending in the application. Claims 3, 5, 25 and 34-42 have been withdrawn from consideration as being drawn to a non-elected species, there being no allowable generic claim. Each of these claims, however, depends from claim 1. Accordingly, upon allowance of claim 1, applicant requests reconsideration of these claims.

On page 2 of the Office action, the drawings are objected to because "Figur" is misspelled. Applicant has amended FIGS. 1-19 to refer to "Figure." In addition, FIG. 1 has been amended by changing numerals 6c and 6d on the left end of spindle 5 to "6c'" and "6d'". In addition, drive shaft 22c has been renumbered "22." Please see the accompanying Request for Approval of Drawing Change.

On page 2 of the Office action, the abstract of the disclosure is objected to because "plug-type connectors" on line 7 is allegedly confusing. The abstract has been amended to change the term "plug-type connectors" to "plug-in connectors." A copy of the Abstract, as amended, on a separate sheet, is enclosed.

On page 3 of the Office action, claims 1, 2, 4, 6-24, 26-33, and 43 are rejected under 35 U.S.C. 112, second paragraph as being allegedly indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant has amended the claims to address the matters of form raised by the Examiner in this rejection.

On page 3 of the Office action, claims 1, 2, 4, 6-15, 24 and 26 are rejected under 35 U.S.C. 102(b) as allegedly being anticipated by Weber. On page 4 of the Office action, claims 16-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weber in view of Isomura. The Examiner states that Isomura discloses a gear housing mounted in a U-shaped gear socket. In addition, claims 27-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weber. The Examiner states that although Weber is silent concerning the particular method of manufacturing the drive, the construction of the drive of Weber would inherently lead to the method steps set forth in claims 27-33.

Claim 1 has been amended to recite a "plug-in connector," wherein each plug-in connector comprises a plug at one of the at least two housing plates and a receptacle for the plug at the other of the least two housing plates, the plug-in connector being connected by plugging

the plug into the receptacle. The amendment makes explicit that which was implicit in the original claims and therefore, it is not believed that the scope of the claim has changed.

With regard to the rejection based on Weber, applicant notes that the plug-in connectors fix the two housing plates relative to each other "in all three-dimensional directions." Weber does not teach or suggest this feature.

Weber discloses an adjustment device with a body comprising an upper body part 2 and a lower body part 3. The lower body part 1 has three upright projections 8 with engaging formations 9, whereas the upper body part 2 has openings 10 corresponding to the upright projections 8. The upper and lower body parts are connected to each other by pressing downwardly the upper body part onto the lower body part whereby the engaging formations 9 of the upright projections 8 engage with parts of the upper body part.

The upright projections 8 of the lower body part are necessarily resilient to be able to engage with the upper body part by pressing the upper body part downwardly. It is clearly shown in the Figures that the upright projections of the lower body part engage with the upper body part in a snap-in manner.

Due to the resilience of the upright projections the position of the upper and the lower body part relative to each other can be fixed only in one direction, namely the direction of the downward pressing (which corresponds to the direction of the axis of the adjusting element 15). In other words, the resilient upright projections do not fix the position in the dimensions in which the upright projections are resilient.

In the two remaining dimensions the positions of the body parts are fixed by form fit of the body parts instead of the upright projections. In Fig. 1 of Weber are shown end tabs 7 and a profile joining the end tabs, wherein the profile corresponds to the outer

surfaces of the walls of the upper body part 2. When pressed onto the lower body part, the upper body part engages with the profile.

Therefore, the upright projections ("plug-in connectors") of Weber do not fix the position of the two body parts ("housing plates") to each other in all three-dimensional directions, but only in one direction.

In view of the above, claim 1 is believed to be patentable over Weber.

Claim 27 also recites that the plug-in connectors fix the at least two housing plates relative to each other "in all three-dimensional directions." Accordingly, for the reasons given above, claim 27 is also believed to be patentable.

The remaining claims depend from claim 1 or claim 27. Since the remaining claims depend from claim 1 or claim 27 and because they contain additional limitations further distinguishing these claims from the prior art when considered as a whole, these claims are also believed to be patentable.

Additional changes have been made to the claims to place them in better form for U.S. practice. In addition, previously independent claim 34 has been amended to depend from claim 1. Accordingly, applicant respectfully requests that claims 34-42, which were withdrawn from further consideration as being drawn to a non-elected specie, be reconsidered.

In view of the above, applicant respectfully requests reconsideration of the application and the allowance of claims 1-43.

Attached hereto is a marked-up version of the changes made to the above-identified application by the current amendment. The attached page is captioned "**Version with markings to show changes made**."

Respectfully submitted,

CHRISTIE, PARKER & HALE, LLP

By 

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626/795-9900

MEG/cks

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Substitute Specification:

At Page 3 line 23:

In a preferred embodiment of the invention it is proposed to fix the position of the housing plates in relation to each other in all three-dimensional directions through the plug-type connectors. This fixing of the housing plates can be produced for example by staking the material in the area of the plug-type connectors, by laser welding or by casting the plug-type connectors and by sticking the connectors. Further features of the invention [~~on this can be derived from claims 27 to 33 which~~] relate to a process for assembling the gear housing.

At page 7 line 13:

The threaded spindle 5 interacts with the gear 9 which is likewise mounted in the hollow cavity 31 and positioned locally fixed in the top rail 3. This arrangement is shown in Figure 2. The gear 9 is held in a U-shaped holder 8 which is fixedly connected to the top rail 3 (not shown here). Uncoupling elements 10a, 10b are inserted between the arms 86a, 86b of the holder[~~s~~] 8 and the gear 9 in order to eliminate any noises and compensate for tolerances.

At page 8 line 15:

The holders 8, 8' have in a further embodiment ideal deformation areas 87a; 87b which are arranged between the arms 86a; 86b of the gear holder 81 and the arms 82a; 82b of the holder 8' [~~82a; 82b~~]. These ideal deformation areas 87a; 87b can in the simplest design be correspondingly dimensioned welded seams. It is however also possible to use as ideal deformation areas 87a; 87b angles or other profiles at this point. All these elements are dimensioned so that they only yield when a predetermined ideal strain is applied and only then is the arm 86a; 86b or the gear socket 81 deformed. This then happens so that when a predetermined maximum boundary strain is exceeded the

arms 86a; 86b swivel sideways and thereby clamp the threaded spindle 5. In the event of a crash this helps to provide additional security for the vehicle seat.

At page 10 line 27:

Corresponding recesses 75 formed as full-length through openings are arranged in the edge areas of the housing plates 71a; 71b transversely to the plane of the housing plates 71a; 71b. These recesses 75 have surfaces [~~752; 752'~~] 751; 751' parallel to the sides 761; 761' of the webs 76.

At page 12 line 10:

The gear 9 is now moved, preferably by turning the drive worm [~~92~~] 91. At least one revolution has to be made. The housing plates 71a; 71b; 72a; 72b can thus be aligned free of tension. After the completion of this movement the holding forces are intensified so that the gear elements 91, 92 and housing plates 71, 71b, 72a, 72b are held in this position and are prevented from slipping. A staking tool now engages in the area of the plug-type connections, that is into the contact points between the webs 76; 76' and 76'' and the recesses 75; 75' and 75'' and then deforms the material plastically at these points. The deformation is carried out so that the material forms undercut sections for example and thus finally fixes the position of the housing plates 71a; 71b; 72a; 72b relative to each other.

At page 15 line 2:

Figure 12 shows a solution wherein a threaded element 60' is welded to the holder [~~5a, 5b~~] 6a, 6b, similar to the variation illustrated in Figure 10. This threaded element 60' is tensioned by a counter nut 63. In the event of an emergency operation, the counter nut 63 can be loosened and thus the threaded spindle 5 can be turned.

At page 17 line 30:

Figure 19 shows a principle sketch from which it is possible to see the use of the invention for driving a window lifter on a vehicle door. As can be seen from Figure 19 a window pane 12 is held between two guide rails 131, 132 which are arranged one on each side of the vehicle door. A window lifter motor 15 is mounted on the lower edge 12' of the window pane 12 through a holding rail 14 and is supplied with power through a cable. The drive shaft 23 of the window lifter motor 15 is connected to the gear 9. The construction of the gear 9 was already described in closer detail with reference to Figure 4. I.e. a drive worm (not shown here) is located inside the gear housing 7 and engages with that of a threaded spindle 5' through a spindle nut. The threaded spindle 5' is fixed rotationally secured on the inner door panel 15 through holding angles 161, 162. The axis of the threaded spindle 5' must thereby point in the direction of movement of the window pane 12.

In the Abstract:

A spindle or worm drive for adjusting devices, especially seat adjustment devices, window lifters and sliding roofs, in motor vehicles. The drive includes a fixed spindle or relatively fixed toothed rack which is secured to the second of the two parts. The gear elements are mounted in a housing which includes at least two plates that can be secured to each other by [~~plug-type~~] plug-in connectors. The connectors are also configured as supporting joints that absorb the forces of the gear.

In the Claims:

1. (Twice Amended) A drive for adjusting devices in motor vehicles comprising:

one of a fixed spindle and a fixed toothed rack fixed on one of two relatively displaceable parts;

a gear assembly mounted on the other of the two relatively displaceable parts; and

a gear housing holding the gear assembly, with the gear housing having at least two housing plates which can be fixed against each other by [~~plug-type~~] plug-in connectors;

each plug-in connector comprising a plug at one of the at least two housing plates and a receptacle for the plug at the other of the at least two housing plates, and the plug-in connector is connected by plugging the plug into the receptacle;

wherein the [~~plug-type~~] plug-in connectors fix the [~~position of the~~] at least two housing plates relative to each other in all three-dimensional directions and thereby form supporting connecting joints which absorb the gear forces.

2. (Three Times Amended) The drive according to claim 1, wherein the at least two housing plates are fixed against each other solely at the [~~plug-type~~] plug-in connections.

4. (Twice Amended) The drive according to claim 1 or 2, wherein the [~~gear housing has~~] at least two housing plates comprises at least two pairs of opposing disc-like housing plates.

6. (Three Times Amended) The drive according to claim 1, wherein for each of the [~~plug-type~~] plug-in connectors [~~each have~~], the plug comprises a raised area extending along the plane of one of the at least two housing plates and the receptacle comprises an associated recess extending transversely to the plane of the one of the at least two housing plates.

11. (Twice Amended) The drive according to claim 6, wherein the housing plates are fixed by plastic deformation of the material in the area of the [~~plug-type~~] plug-in connectors.

16. (Three Times Amended) The drive according to claim 1, wherein the two relatively displaceable parts are [~~the~~] a bottom rail and [~~the~~] a top rail of a box-profile type guide rail assembly, the guide rail assembly having a hollow cavity; and

wherein the one of the fixed spindle and the fixed toothed rack is a spindle [~~is~~] mounted in the hollow cavity and [~~is~~] fixed through its ends on the bottom rail and the gear housing is fixed on the top rail.

20. (Three Times Amended) The drive according to claim 18, wherein the gear assembly and gear housing are assembled as a unit located in the holder, and in the hollow cavity of the [~~rail~~] guide rail assembly and screwed to the top rail through the fastening openings.

23. (Three Times Amended) The drive according to claim 17, further comprising ideal deformation points between the gear socket and the arms of the holder [~~(8'')~~] so that when a predetermined maximum boundary strain is exceeded the gear socket swivels sideways and clamps the threaded spindle.

25. (Three Times Amended) The drive according to claim 1 for use with a window lifter, wherein the two relatively displaceable parts are a vehicle door and a window pane, the one of the fixed spindle and the fixed toothed rack is a spindle [~~is~~] fixed on the vehicle door so that the spindle points in the direction of movement of [~~a~~] the window pane, the gear assembly is connected to the spindle and is connected to the lower edge of the window pane.

26. (Three Times Amended) The drive according to claim 1, wherein one of a spindle and a worm drive is a constituent part of an

adjustment device for adjusting one of a seat height, seat incline, seat cushion depth, head restraint or backrest.

27. (Four Times Amended) A method for assembling a gear housing for a drive for adjusting devices in motor vehicles comprising:

a) providing one of a fixed spindle and a fixed toothed rack fixed on one of two relatively displaceable parts;

a gear assembly mounted on the other of the two relatively displaceable parts; and

a gear housing holding the gear assembly, with the gear housing having at least two housing plates which can be fixed against each other by [~~plug-type~~] plug-in connectors;

each plug-in connector comprising a plug at one of the at least two housing plates and a receptacle for the plug at the other of the at least two housing plates, and the plug-in connector is connected by plugging the plug into the receptacle;

wherein the [~~plug-type~~] plug-in connectors fix [~~the position of~~] the at least two housing plates relative to each other in all three-dimensional directions and thereby form supporting connecting joints which absorb the gear forces;

b) prefitting gear elements of the gear assembly and the housing plates by fitting the housing plates together with the [~~plug-type~~] plug-in connections to form the gear housing with supporting connecting joints that absorb gear forces;

c) inserting the gear elements and the housing plates into a device which holds the housing plates with sufficiently light holding forces around the outer contour so that the housing plates can be aligned when the gear elements are turned,

d) turning the gear elements for the purpose of aligning bearing points of the gear elements which are provided on the housing plates; and

e) after alignment, securing the position of the gear elements and housing plates relative to each other by increasing the holding forces and permanently fixing the position of the housing plates in all three-dimensional directions through action on the [~~plug-type~~] plug-in connectors.

29. (Twice Amended) The method for assembling a gear housing according to claim 27, wherein the gear elements are driven at a speed which is above their nominal speed [~~of the gear~~] and the position of the housing plates are fixed relative to each other during rotation of the gear elements.

30. (Twice Amended) The method for assembling a gear housing according to claim 27, wherein the fixing of the housing plates is produced by staking material in the area of the [~~plug-type~~] plug-in connectors, but outside of the area of bearing bores for the gear elements.

31. (Twice Amended) The method for assembling a gear housing according to claim 27, wherein the fixing of the housing plates is undertaken by one of laser welding and casting the [~~plug-type~~] plug-in connectors.

32. (Twice Amended) The method for assembling a gear housing according to claim 27, wherein the fixing of the housing plates is carried out by sticking the [~~plug-type~~] plug-in connectors.

34. (Twice Amended) [~~A spindle~~] The drive according to claim 1 [~~for adjusting devices in motor vehicles comprising~~]:

wherein the one of the fixed spindle and the fixed toothed rack is a threaded spindle tensioned rotationally secure between two holders at its ends; and

[~~a spindle nut mounted in a~~] the gear assembly comprises a spindle nut [~~and~~] engaged with the spindle;

wherein the threaded spindle is fixed in at least one holder through an ideal break point and wherein one end of the threaded spindle has a positive locking element which can be connected to a rotating tool in order to overcome the ideal break point for the purpose of an emergency operation of the drive.

36. (Twice Amended) The spindle drive according to claim 35, wherein the threaded element has on [~~the~~] a side remote from the holder a distance sleeve for defining [~~the~~] a travel path of [~~the~~] a top rail on [~~the~~] a bottom rail.

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